

CLAIMS

[1] An order forecast system for deciding safe stock quantities based on forecast information indicating required quantities for a plurality of scheduled delivery dates or scheduled delivery periods, which system comprises:

a forecast storage section for storing a plurality of sets of past forecast information having different receive dates; an actual order quantity storage section for storing actual order quantities for each delivery date or delivery period; and a processing unit for using the past forecast information stored in the forecast storage section and the actual order quantities stored in the actual order quantity storage section to calculate the safe stock quantities by correcting required quantities in new sets of forecast information for which forecasts are to be made,

wherein the processing unit calculates a plurality of conversion coefficients that are ratios of one or more required quantities contained in the sets of past forecast information to one or more corresponding actual order quantities;

calculates a standard deviation of the conversion coefficients whose forecast lead times, defined as a period between forecast receive date and scheduled delivery date, are the same;

judges a forecast lead time whose standard deviation or a value derived therefrom does not exceed a predetermined threshold to be a valid forecast lead time;

calculates a forecast quantity of orders for each scheduled delivery date or scheduled delivery period by performing an arithmetic operation using, among the required quantities contained in the new sets of forecast information, those that correspond to the valid forecast lead times, and the conversion coefficients corresponding thereto;

calculates a margin for each scheduled delivery date or scheduled delivery period by performing an arithmetic operation using, among the required quantities contained in the new sets of forecast information, those that correspond to the valid forecast lead times, and the standard deviation of the conversion coefficients corresponding thereto; and

calculates the safe stock quantities for each scheduled delivery date or scheduled delivery period by adding to the forecast quantity of orders for each scheduled delivery date or scheduled delivery period the margin corresponding thereto.

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[2] The order forecast system as claimed in claim 1, wherein the forecast quantity of orders is calculated by multiplying a required quantity contained in the new forecast information by an average value of a plurality of corresponding conversion coefficients.

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[3] The order forecast system as claimed in claim 1, wherein the conversion coefficients are calculated as a ratio of two or more required quantities among the required quantities contained in the past forecast information

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whose forecast lead times are consecutive to two or more corresponding actual order quantities.

5 [4] The order forecast system as claimed in claim 2, wherein the conversion coefficients are calculated as a ratio of two or more required quantities among the required quantities contained in the past forecast information whose forecast lead times are consecutive to two or more corresponding actual order quantities.

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[5] The order forecast system as claimed in claim 3, wherein the conversion coefficient is treated as the conversion coefficient corresponding to the forecast lead time among the two or more consecutive forecast lead times whose period is shortest.

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[6] The order forecast system as claimed in claim 4, wherein the conversion coefficient is treated as the conversion coefficient corresponding to the forecast lead time among the two or more consecutive forecast lead times whose period is shortest.

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[7] The order forecast system as claimed in claim 1, wherein a forecast lead time whose ratio of standard deviation to an average value of a plurality of conversion coefficients corresponding thereto does not exceed a predetermined threshold is judged to be a valid forecast lead time.

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30 [8] The order forecast system as claimed in claim 2,

wherein a forecast lead time whose ratio of standard deviation to an average value of a plurality of conversion coefficients corresponding thereto does not exceed a predetermined threshold is judged to be a valid forecast lead time.

[9] The order forecast system as claimed in claim 3, wherein a forecast lead time whose ratio of standard deviation to an average value of a plurality of conversion coefficients corresponding thereto does not exceed a predetermined threshold is judged to be a valid forecast lead time.

[10] The order forecast system as claimed in claim 4, wherein a forecast lead time whose ratio of standard deviation to an average value of a plurality of conversion coefficients corresponding thereto does not exceed a predetermined threshold is judged to be a valid forecast lead time.

[11] The order forecast system as claimed in claim 5, wherein a forecast lead time whose ratio of standard deviation to an average value of a plurality of conversion coefficients corresponding thereto does not exceed a predetermined threshold is judged to be a valid forecast lead time.

[12] The order forecast system as claimed in claim 6, wherein a forecast lead time whose ratio of standard deviation to an average value of a plurality of conversion

coefficients corresponding thereto does not exceed a predetermined threshold is judged to be a valid forecast lead time.

5 [13] The order forecast system as claimed in claim 1,
 wherein the margin for a scheduled delivery date or
 scheduled delivery period is calculated by multiplying
 required quantity data contained in the new forecast
10 information by a corresponding conversion coefficient
 standard deviation to obtain an order quantity standard
 deviation; calculating a cumulative margin for the
 scheduled delivery date or scheduled delivery period based
 on the forecast order quantity standard deviation and an
 allowable stockout rate; and subtracting from the
15 cumulative margin for the scheduled delivery date or
 scheduled delivery period a cumulative margin
 corresponding to the preceding scheduled delivery date or
 scheduled delivery period.

20 [14] The order forecast system as claimed in claim 13,
 wherein the cumulative margin for a scheduled delivery
 date or scheduled delivery period is calculated by adding
 a value obtained by squaring the forecast order quantity
 standard deviation corresponding to the predetermined
25 scheduled delivery date or scheduled delivery period to
 a value obtained by squaring the forecast order quantity
 standard deviation corresponding to the scheduled
 delivery date or scheduled delivery period preceding the
 predetermined scheduled delivery date or scheduled
30 delivery period; and multiplying the square root of the

value obtained by the addition by a constant based on a stockout rate.

[15] An order forecast method for deciding safe stock quantities based on forecast information indicating required quantities for a plurality of scheduled delivery dates or scheduled delivery periods, which method comprises:

storing a plurality of sets of past forecast information having different receive dates in a forecast storage section;

storing actual order quantities for each delivery date or delivery period in an actual order quantity storage section;

calculating a plurality of conversion coefficients that are ratios of one or more required quantities contained in the sets of past forecast information stored in the forecast storage section to one or more corresponding actual order quantities among the actual order quantities stored in the actual order quantity storage section;

calculating a standard deviation of the conversion coefficients whose forecast lead times, defined as the period between forecast receive date and scheduled delivery date, are the same;

judging a forecast lead time whose standard deviation or a value derived therefrom does not exceed a predetermined threshold to be a valid forecast lead time;

calculating a forecast quantity of orders for each scheduled delivery date or scheduled delivery period by

performing an arithmetic operation using, among the required quantities contained in the new sets of forecast information, those that correspond to the valid forecast lead times, and the conversion coefficients corresponding thereto;

calculating a margin for each scheduled delivery date or scheduled delivery period by performing an arithmetic operation using, among the required quantities contained in the new sets of forecast information, those that correspond to the valid forecast lead times, and the standard deviation of the conversion coefficients corresponding thereto; and

calculating the safe stock quantities for each scheduled delivery date or scheduled delivery period by adding to the forecast quantity of orders for each scheduled delivery date or scheduled delivery period the margin corresponding thereto.

[16] An order forecast program for causing a computer to execute:

a step of calculating a plurality of conversion coefficients that are ratios of one or more required quantities contained in sets of past forecast information to one or more corresponding actual order quantities;

a step of calculating a standard deviation of the conversion coefficients whose forecast lead times, defined as the period between forecast receive date and scheduled delivery date, are the same;

a step of, for each forecast lead time, comparing the standard deviation or a value derived therefrom with a

predetermined threshold and judging the forecast lead time to be a valid forecast lead time if the threshold is not exceeded;

5 a step of performing an arithmetic operation using,
among the required quantities contained in the new sets
of forecast information, those that correspond to the
valid forecast lead times, and the conversion coefficients
corresponding thereto, thereby calculating a forecast
10 quantity of orders for each scheduled delivery date or
scheduled delivery period;

15 a step of performing an arithmetic operation using,
among the required quantities contained in the new sets
of forecast information, those that correspond to the
valid forecast lead times, and the standard deviation of
the conversion coefficients corresponding thereto,
thereby calculating a margin for each scheduled delivery
date or scheduled delivery period; and

20 a step of calculating safe stock quantities for each
scheduled delivery date or scheduled delivery period by
adding to the forecast quantity of orders for each
scheduled delivery date or scheduled delivery period the
margin corresponding thereto.